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## **GINKGO BILOBA L. LEAVES CIGARETTE**

### **Technology Field of the Invention**

5bB1 This invention relates to a kind of cigarette substitute, particularly,  
Ginkgo biloba L. leaves cigarette in order to provide a new kind of  
5 cigarette for society.

### **Background of the Invention**

Many investigations and experiments have proved that smoking  
is harmful to people's health.

5bB2 While all the governments of the world are advocating quitting  
smoking and making laws to limit the producing and selling of  
cigarettes, scientists and tobacco technicians are making efforts to  
study how to lessen the cigarette's harm and develop low harm or  
harmless cigarettes. It is because that there are too many smokers, the  
complete prohibition of smoking achieved little effect. On social effect  
15 and economic return, the contradictions, smoking and health, are still  
existing.

5bB3 In the field of production, the filter technology is usually adopted  
to eliminate the poisonous substances from cigarettes. Most kinds of  
cigarette filters are made of active charcoal fibre or vinegar acidity fibre

(see CN2174854Y and CN/088763A). Another method is in connection with cut tobacco itself. That is to treat the cut tobacco by special process (see CN 1045515A).

However, these ordinary methods mentioned above cannot solve  
5 the problems thoroughly.

*sb34* To prevent and cure diseases, people have so far developed Argy wormwood leaf cigarette, Tea cigarette, Fiveleaf Gynostemma Herb cigarette and mixed herbal cigarette which is produced by adding eucalyptus, Dogbane leaf, Pilose Asiabell Root, Wild Mint Herb, Slen derstyle Acanthopanax Root-bark, Changbai Ginseng, Fritillary Bulb, Milkvetch Root, Tremella, Lucid Ganoderma, Radish, Dwarf Lilyturf Tuber, Tall Gastraodia Tuber, Eucommia Bark, Hempleaf Negundo Chastetree, Coral and Ginger into tobacco. However, these cigarettes are not satisfactory in respect of cost, medical effect, and low  
10 poisonousness. People are trying to develop a new kind of cigarette substitute which is satisfactory in the respects of cost, taste and  
15 poisonousness.

*sb36* Ginkgo biloba L., which is dioecious, is of gymnosperm. It originally grows in China. Ginkgo biloba L. is the oldest tree species in  
20 the world, even older than dinosaur, so it is called "live fossil". It has great vitality. In 1966 German scientist W. Schwabe discovered that

Ginkgo biloba L Leaves contain some active substances-Flavonoids and Ginkgolide, which can prevent and care angiopathology and nerve system diseases. From then on, the modern study on Ginkgobiloba L. Leaves' pharmacological property and application began. Scientific 5 researches proved that Ginkgo biloba L. leaves contain a large amount of flavonoids and Ginkgolide A, B and C. Flavonoides are especially effective in curing angiopathology and are widely used at present. The can make the sclerosed blood vessels recover elasticity, improve the brittleness of blood vessels, dilate blood vessels and prevent the 10 atrophy of organ functions caused by the bad circulation of blood. Ginkgolide is specific platelet activating factor antagonist. (PAF is one of the mediums of the paroxysm of many diseases.) It has the functions of making blood active and minimizing the cholesterol content in blood. It also can be used to prevent and cure the allergic diseases 15 of breath tract. Bilobalide can straighten out cranial nerve streak and has the functions of refreshing, resisting fatigue and intensifying memory. In 1991, a Harvard scholar won the Nobel Prize for successfully synthesizing Bilobalide in laboratory. Scientists and medical experts have proved by animal experiments that many 20 pharmaceutical substances in Ginkgo biloba L. leaves have important effects on deterring senescence and resisting diseases. Therefore,

many developed countries such as America, Korea and some European countries are speeding up to develop Ginkgo biloba Extract.

5 ~~b3b4~~ In China, several kinds of Ginkgo biloba medicines have been developed. China is the main producing country of Ginkgo biloba L. leaves, and however, the development on Ginkgo biloba L. leaves product is still in its beginning stages.

10 ~~b3b5~~ Ginkgo biloba L. leaves contain plentiful fibres. The cigarette substitute made of dry Ginkgo biloba L. leaves burns continuously and fully. Its ashes are white and fine. Its smoke is soft and dense. Its taste is good and its smell is fragrant and sweet. Its pharmaceutical active ingredients volatilize continuously at the same time of burning.

15 ~~b3b5~~ As a cigarette substitute, Ginkgo biloba L. leaves cigarette also has obvious function of refreshing, but its principle is different from that of the ordinary cigarette. The smoke of the ordinary cigarette contains nicotine which can stimulate brain nerves to be excited, and make people become addicted to it. The smoke of Ginkgo biloba L. leaves cigarette contains Bilobalide and other pharmaceutical active ingredients which can stimulate the brain nerve and straighten out cranial nerve system, having function of refreshing and resisting fatigue. It doesn't contain any nicotine at all. Therefore, Ginkgo biloba L. leaves cigarette is not only an excellent cigarette substitute, but also an ideal product for

quitting smoking. A tobacco addict can successfully quit smoking with no agony by smoking Ginkgo biloba L. cigarette.

5bB<sup>9</sup> In view of the above-mentioned factors, Ginkgo biloba L. leaves can do good to human bodies. It contains the pharmaceutical active ingredients which can volatize easily and its smokable property is similar to tobacco cigarette, so it is hopeful to take the place of the cigarette which contains nicotine.

5bB<sup>10</sup> A poisonousness-reduced cigarette and its producing process are disclosed in reference CN1140036A. This kind of cigarette contains the solution extract of Ginkgo biloba L. leaves, Leech, Szechwan Lovage Rhizome and other three substances. What is worth mentioning is that the substances mentioned above are sprayed onto the cut tobacco in the form of solution.

5bB<sup>11</sup> After the long-period study of the inventor, a kind of Ginkgo biloba L. leaves cigarette has been developed. The raw material is Ginkgo biloba L. leaves, containing little or no tobacco. Therefore it is good to people's health and is completely different from the cigarette introduced in reference CN1140036A. As mentioned above, the cigarette's raw material of the latter is tobacco, and the solution extract is sprayed onto its surface. It is obvious that the nicotine content can not lowered at all.

**Summary of the Invention**

*sib B<sup>12</sup>* The object of this invention is to produce Ginkgo biloba L. leaves cigarette using Ginkgo biloba L. leaves and to provide people with a kind of cigarette substitute which has functions of the ordinary cigarette, 5 while it is good to people's health. It will help people to go far away from tobacco and avoid the harm brought by smoking. Ginkgo biloba L. leaves are the main material of this kind of cigarette, and, if necessary, tobacco can optionally be added therein according to special requirements.

**10 Detailed Description of the Preferred Embodiments**

*sib B<sup>13</sup>* One embodiment of this invention is to pick fresh Ginkgo biloba L. leaves from trees, process them into threads, then replace tobacco with 100 wt % dry material of this kin. Another embodiment is to blend dry Ginkgo biloba L. leaves with a percentage of more than 50 weight 15 and tobacco with a percentage of less than 50 weight together.

*sib B<sup>14</sup>* The process therefor includes producing pure Ginkgo biloba L. leaves cigarette or complex Ginkgo biloba L. leaves cigarette by means of ordinary process for producing cigarette.

*sib B<sup>15</sup>*

Example 1

wbB23 Therefore, the invention of Ginkgo biloba L. leaves is very important to solve the problems of smoking and passive smoking. The Ginkgo biloba L. leaves can be picked artificially. The cigarettes can be produced with ordinary technology. What is more important is that its  
5 application can bring us great social effects and economic returns.

*sb B<sup>15</sup> cont* Use ~~dry~~ processed Ginkgo biloba L. leaves, ~~flue-cure~~ them, then cut them into threads after moist-cured by means of ordinary process for producing cigarette.

*dry-cured*

*sb A<sup>1</sup>*

*sb B<sup>16</sup>* the pure Ginkgo biloba L. leaves cigarette can be produced.

5 Example 2

*sb B<sup>17</sup>* Use ~~dry~~ processed Ginkgo biloba L. leaves, flue-cure them, then cut them into threads or pieces after moist-cured. Using the ordinary cigar wrappers, the Ginkgo biloba L. leaves cigar can be produced.

Example 3

10 *sb B<sup>18</sup>* Use ~~dry~~ processed Ginkgo biloba L. leaves 50Kg, cut them into threads or pieces after moist-cured, then add ordinary tobacco 5Kg, then blend them together. By means of the ordinary process for producing cigarette, the mixed cigarette can be produced.

*sb B<sup>19</sup>* Test Example 1

15 *sb B<sup>19</sup>* object of the test:

To test mouse peroral toxicity of Ginkgo biloba L. leaves cigarette.

2. Material and method: Horn method is adopted.

*42320*  
Use Mice of Qunming (a province of China) species provided by standard animal laboratory, 18~21 g weight, and half male and half female. The samples to be tested are made up with distilled water, 5 orally fill into stomach in one dose, and observe them for one week.

3. Result

dosage	10000	4640	2150	1000mg/Kg
female	0/5	0/5	0/5	0/5
male	0/5	0/5	0/5	0/5

10 Adopting Horn method, the result is as below: LD50 of this sample is higher than 10000mg/Kg.

4. Conclusion: The sample is non-toxic.

Test Example 2: Flue gas analysis.

Test Content: Nicotine content.

15 Based Standards of Test: GB/T5606.1 5606.2-1996

GB5606.3-5606.6-1996

YC/T28.28.12-1996

Average Smoke Times: 14.6

Moisture Content (mg/cigarette): 2.24

Nicotine (mg/cigarette): 0.00

Conclusion: There is no nicotine in the smoke.

### Industrial Applicability

*sub B2* Because the flavolides, Ginkgolide and bilobalide contained in

5 Ginkgo biloba L. leaves are easy to volatilize, and while the cigarette is  
burning the temperature is becoming lower and lower from the burning  
end to the filter, the pharmaceutical active ingredients contained in the  
cigarette can volatilize with smoke before being destroyed for being  
overheated. These ingredients are absorbed into human body and go  
10 into blood circulation by lung. Smoking Ginkgo biloba L. leaves have  
obvious effects on preventing hypertension and angiopathology,  
recovering from fatigue, refreshing, stimulating appetite and improving  
sleep. Long-term smoking of this kind of cigarette substitute can  
prevent and cure senile dementia disease, hypertension, heart disease,  
15 arteriosclerosis, cerebral and brain function failing. It is helpful to  
intensify memory, build up a good physique and deter senescence.

*sub B2* The pure Ginkgo biloba L. leaves cigarette has a good taste, the

passive smoker can easily smell its fragrance. As containing no  
tobacco, it can avoid the harm brought by nicotine and can be used as  
20 an ideal product for quitting smoking tobacco cigarette.